

AMENDMENTS TO THE CLAIMS**Please amend the claims as follows:**

1. (currently amended) A quantum limit catalyst comprising:
catalytic atomic aggregations, said atomic aggregations consisting essentially of an assembly of atoms of one or more metal elements, said atomic aggregations having a size of 100 Å or less, said size placing said atomic aggregations in the quantum limit, said quantum limit atomic aggregations ~~lacking a metallic band structure~~ having a non-crystalline structure.
2. (canceled)
3. (canceled)
4. (original) The catalyst of claim 1, wherein said atomic aggregations comprise a transition metal.
5. (original) The catalyst of claim 1, wherein said atomic aggregations comprise Fe, Mg, V, or Co.
6. (original) The catalyst of claim 1, wherein said size of said atomic aggregations is less than or equal to 40 Å.
7. (original) The catalyst of claim 1, wherein said size of said atomic aggregations is less than or equal to 20 Å.
8. (original) The catalyst of claim 1, wherein said catalyst is a hydrogen storage material.
9. (canceled)
10. (canceled)
11. (original) The catalyst of claim 8, wherein said hydrogen storage material comprises Mg.

12. (original) The catalyst of claim 11, wherein said catalyst absorbs hydrogen in its unactivated state.
13. (original) The catalyst of claim 12, wherein said unactivated hydrogen storage material absorbs at least 4.5 wt.% hydrogen.
14. (original) The catalyst of claim 12, wherein said unactivated hydrogen storage material absorbs at least 3.5 wt.% hydrogen.
15. (original) The catalyst of claim 12, wherein said unactivated hydrogen storage material absorbs hydrogen at a temperature of 30 °C or above.
16. (original) The catalyst of claim 15, wherein said unactivated hydrogen storage material absorbs at least 0.19 weight percent hydrogen.
17. (original) The catalyst of claim 12, wherein said unactivated hydrogen storage material absorbs hydrogen at a temperature of 50 °C or above.
18. (original) The catalyst of claim 17, wherein said unactivated hydrogen storage material absorbs at least 0.43 weight percent hydrogen.
19. (previously presented) The catalyst of claim 1, wherein said catalytic atomic aggregations consist essentially of two or more metal elements.
20. (new) The catalyst of claim 1, wherein said quantum limit atomic aggregations have an amorphous structure.
21. (new) The catalyst of claim 1, wherein said quantum limit atomic aggregations are comprised primarily of surface atoms, said surface atoms being partially unbonded.
22. (new) The catalyst of claim 1, wherein said quantum limit atomic aggregations consist essentially of Mg.

23. (new) The catalyst of claim 1, wherein said quantum limit atomic aggregations consist essentially of V.

24. (new) The catalyst of claim 1, wherein said quantum limit atomic aggregations consist essentially of Co.

25. (new) The catalyst of claim 1, wherein said quantum limit atomic aggregations consist essentially of Fe.